



Zero- and Near Zero-Emission Freight Facilities Project: Fuel Cell Hybrid Electric Delivery Van Deployment

The project team, led by Center for Transportation and the Environment (CTE), will build and demonstrate 15 additional fuel cell hybrid electric delivery vans based upon their first prototype built in partnership with the U.S. Department of Energy. The objective of this project is to promote future commercialization of fuel cell system retrofit kits that will significantly transform the parcel delivery market while achieving greenhouse gas, criteria pollutant, and toxic emission reduction. The demonstration will generate performance data that will be analyzed to determine the project’s effectiveness in meeting its objectives.



The fuel cell hybrid electric delivery van powertrain will be fully integrated by Unique Electric Solutions (UES); University of Texas – Center for Electromechanics (UT-CEM) will provide consultation into the fuel cell and hydrogen system integration; Hydrogenics will supply each of the HD30 (30-kW) fuel cell engines; and hydrogen fuel will be provided at a fueling station local to UPS’s customer center in Ontario, CA, where the vehicles will be demonstrated in regular UPS delivery service.

Dates: Winter 2019 – Spring 2021
Grantee: CTE
Partners: Unique Electric Solutions, Hydrogenics USA, University of Texas – Center for Electromechanics, United Parcel Service (UPS)

Grant Amount (pending final grant execution):
 CARB Contribution: \$4,302,896
 Matching Funds: \$5,188,342
 Project Total: \$9,491,238



Vehicles/Equipment Funded

Under the Zero- and Near Zero-Emission Freight Facilities Project grant, CARB will be funding the following equipment:

- Fifteen (15) fuel cell hybrid electric delivery vans integrated by Unique Electric Solutions.
- Fifteen (15) “HD30” 30-kW fuel cell engines developed and built by Hydrogenics USA.

This equipment will be delivered to and operated at the UPS Customer Service facility in Ontario, CA, where they will be demonstrated for one year in regular parcel delivery service.

Lessons Learned During First Prototype Vehicle

- 125 miles of zero-emission range is achievable with a fuel cell delivery van, meeting over 95% of parcel delivery route needs.
- The use of proven off-the-shelf components is critical for system-level integration and build for demonstration projects.
- Robust communication among all stakeholders is important for all phases of design, build, risk mitigation, issue resolution, and deployment.

Status Updates

- The initial prototype vehicle is currently operating out of the UPS Customer Service facility in West Sacramento, CA.
- The project team is developing engineering design updates that are based on lessons learned from the first vehicle.
- Unique Electric Solutions is developing their manufacturing plan for these 15 delivery vans.